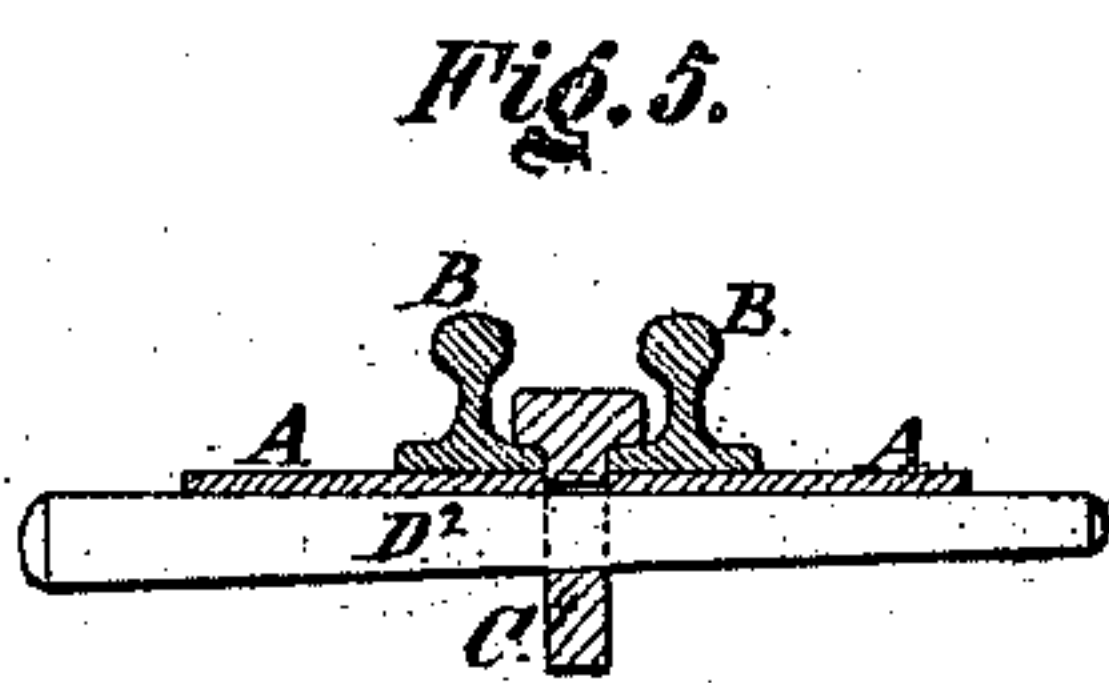
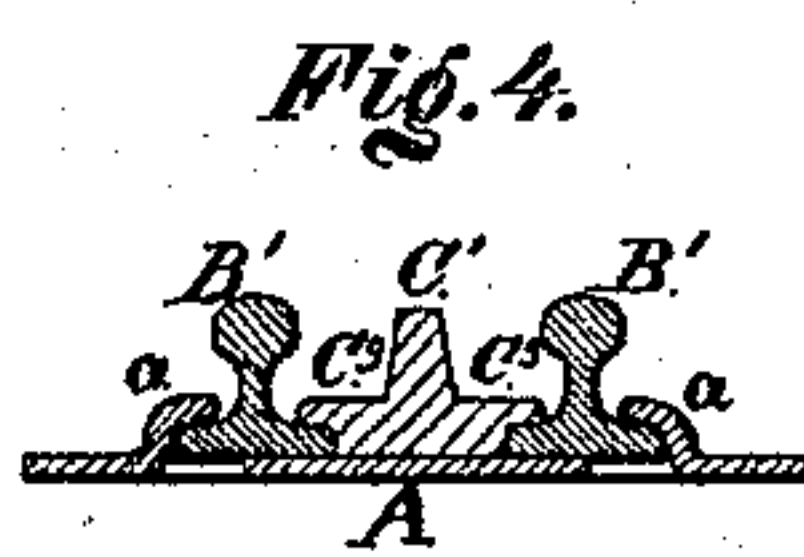
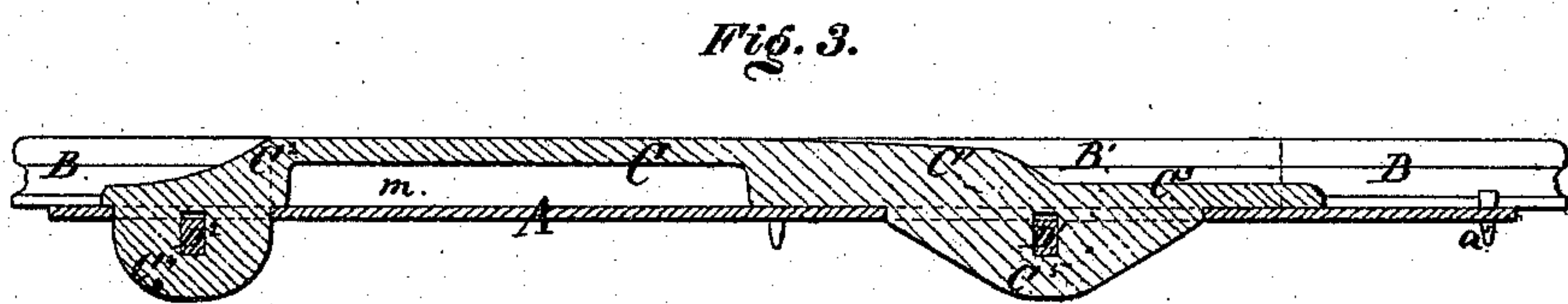
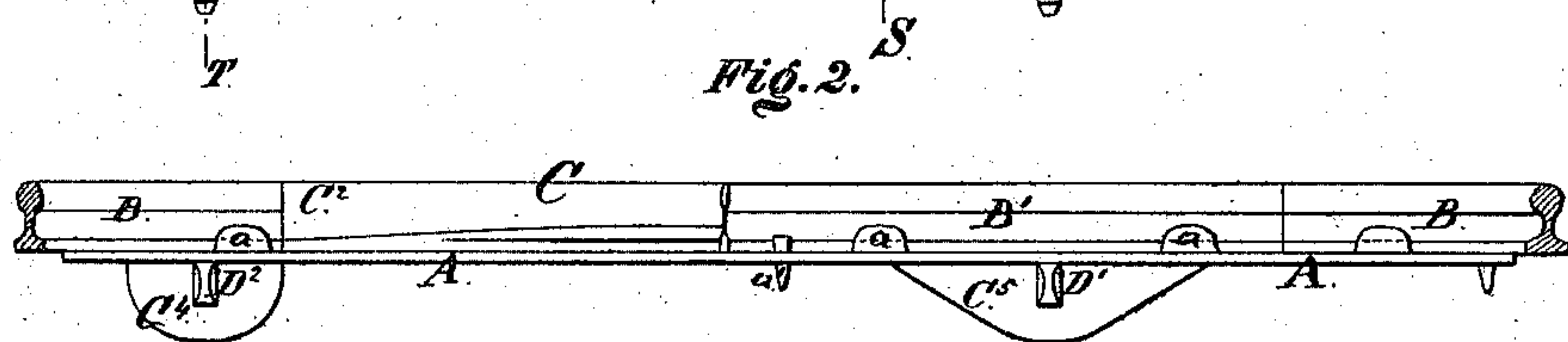
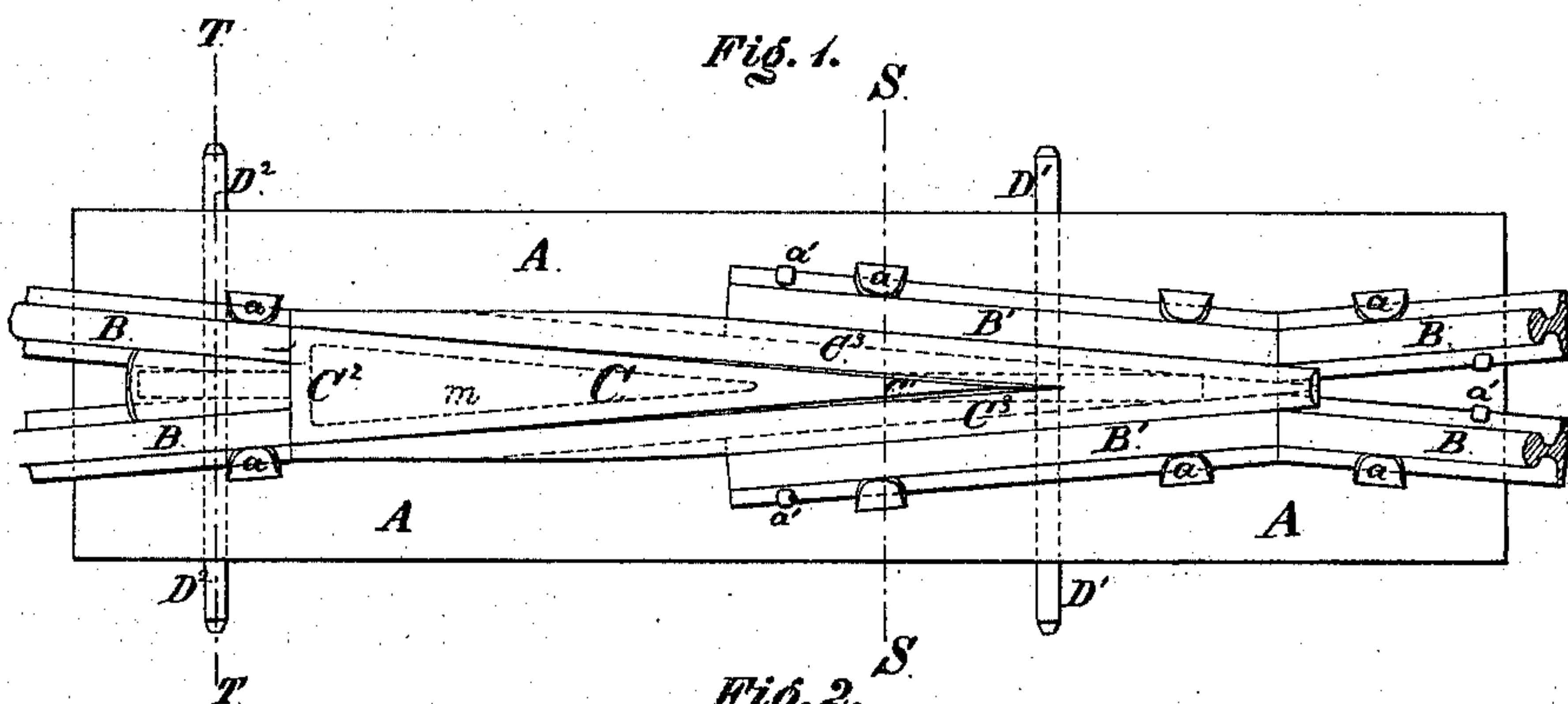


J. Patterson,
Railway Frog.

No. 94,970.

Patented Sept. 21, 1869.



Witnesses:

A. Hoermann.

E. C. Livings

Inventor.

James Patterson

by his attorney
Thomas D. Stetson.

United States Patent Office.

JAMES PATTERSON, OF HORNELLSVILLE, NEW YORK.

Letters Patent No. 94,970, dated September 21, 1869.

IMPROVED RAILWAY-FROG.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JAMES PATTERSON, of Hornellsville, in the county of Steuben, and State of New York, formerly blacksmith in steel and repair-work on the New York and Erie Railroad, have invented certain new and important Improvements in Frogs for Railroad Tracks; and I do hereby declare that the following is a full and exact description thereof.

It has been found by experience that a frog fulfils its function better and endures longer, if made light, than if made very massive. My frog is extremely light. Its mode of construction is peculiarly favorable to this quality. It has also other merits of great importance, as will appear further on.

I will first describe what I consider the best means of carrying out my invention, and will afterwards designate the points which I believe to be new therein.

The accompanying drawings form a part of this specification;

Figure 1 is a plan view of the frog.

Figure 2 is a side elevation;

Figure 3 is a central longitudinal section;

Figure 4 is a cross-section on the line S S of fig. 1; and

Figure 5 is a cross-section on the line T T, in the same figure.

Similar letters of reference indicate like parts in all the figures.

A is a broad bed-piece of thick rolled iron. Parts *a a* are partially cut out by suitable dies, and are bent up into the positions represented by other dies, so as to lap upon and hold the rails B and wings B' in the manner indicated. Spikes may also be employed, as indicated by *a' a'*, to hold the parts against end motion.

The rails B B are lapped upon the bed A, and are secured thereon against lateral movement, partly by the turned-up portions *a* and the spikes *a'*, and partly by being held by the frog-tongue, or point.

The wings may be formed of similar rails, as indicated by B' B'. The wings are also held laterally by similar means, that is, by the frog-tongue, and by the parts *a* and spikes *a'*. The wings B' may, if preferred, be bent continuations of the rails, against which they are represented as abutting; but in such case it is obviously important that the junction be formed by an angle, instead of by a gradual curve.

I somewhat prefer making the parts B and B' of entirely separate pieces of material. The wings B' may be all steel, or they may be rails plated with steel, as economy or other considerations shall dictate. There is less necessity for making the rails B of steel, though this is well.

The frog-point, or tongue I shall indicate as a whole by C, and its several parts by C¹, C², &c. The active

portion of the tongue, or point is indicated by C¹. The whole is, by preference, made of cast-steel, of good quality. The large end of the tongue is extended between the rails at that end, as indicated by C², and is adapted to match at each side against the surface of the rails, so as to assist in holding the rails at that end of the frog, both vertically and laterally. The working-portion C¹ of the tongue is flanked by two webs, C³ C³, which extend along each side of its base, and project a good distance beyond the end of the working-portion of the point. These webs C³ C³ are adapted to fit upon, and thus to aid in holding, both vertically and laterally, the wings B'. The webs C³ extend the bend, or the junction of the wings B' with rails B, as represented.

Having made the frog-point thus to aid in holding the rails and wings in position, it is obviously important to provide very efficient means of holding the frog-point itself. This I effect by means of two keys, D¹ D², which are driven across under the bed A, and lock down the frog-point by passing through lugs C⁴ C⁵. These lugs are formed on the under side of the frog-point; and form a portion of the same steel casting. They are narrow, but deep and strong, and drop into corresponding apertures, punched by machinery or otherwise, produced in the bed A.

The bed A and its entire dependencies may be mounted on a sub-bed of material, which may possess any desired degree of elasticity, or yielding property, if preferred.

In order to remove the frog-tongue, or to liberate the parts which are held by it, it is necessary simply to sufficiently remove the earth or other material adjacent to the base, and to drive back or remove entirely the keys D¹ D². A slight loosening of these keys will, under proper conditions in other respects, liberate the rails or the wings. An entire removal of the keys allows all the parts, including the entire frog-point, or tongue, to be readily removed for repairs or for the substitution of new parts.

The light bed A may, if preferred, be made of tough cast-iron, taking care to produce the parts *a* in the proper form and position.

A quality of very great importance I have left to be described last. This is the hollow interior of the frog-tongue. This hollow is indicated by *m*, and is represented in strong lines in fig. 3, and in dotted lines in fig. 1. It contributes greatly to the lightness of the construction, and not only conduces to economy in the manufacture, but promotes materially the slight springiness of the parts, which I esteem so conducive to the durability both of the frog and of the rolling-stock which passes over it. The springiness due to the lightness of the bed and the other parts differs substantially from that due to the introduction of In-

dia rubber or analogous elastic material under a heavy frog. A heavy frog has inertia, which resists concussions independently of any elasticity in the support thereof. My light frog has less inertia. It may be used on any patent or other foundation; but, whether resting on an elastic or rigid support, possesses in itself an inherent springiness, which, though slight, contributes very materially to soften concussions, in an analogous manner to the effect (which would in such case be injurious) of making an anvil hollow and extremely light.

I claim—

1. The part C^2 , extending from the broad end of the frog-point, and matching to the adjacent rail-ends, so as to aid in supporting the same laterally and ver-

tically, and to form an attachment for the holding-down lug C^4 , as herein shown.

2. The webs C^3 C^3 , extending along the base of the frog-point and beyond the end of the working-portion thereof, and serving the double function, first, of aiding to support the wings, both vertically and laterally, and, second, of forming a junction for the lug C^5 , as and for the purposes herein shown and described.

In testimony whereof I have hereunto set my name, in presence of two subscribing witnesses.

JAMES PATTERSON.

Witnesses:

C. C. LIVINGS,

W. C. DEY.